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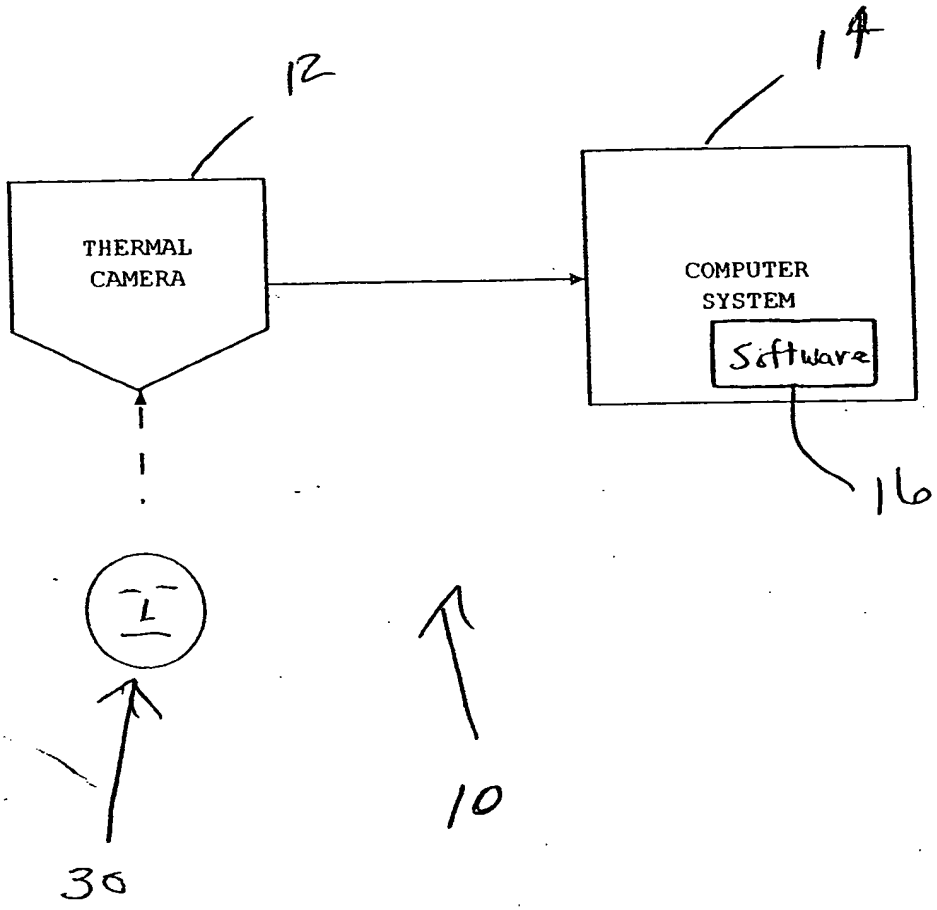
IOANNIS PAVLIDIS
H0002443-01
John G. Shudy, Jr., Attorney
System and Method Using Thermal Image Analysis for Polygraph Testing

FIGURE 1



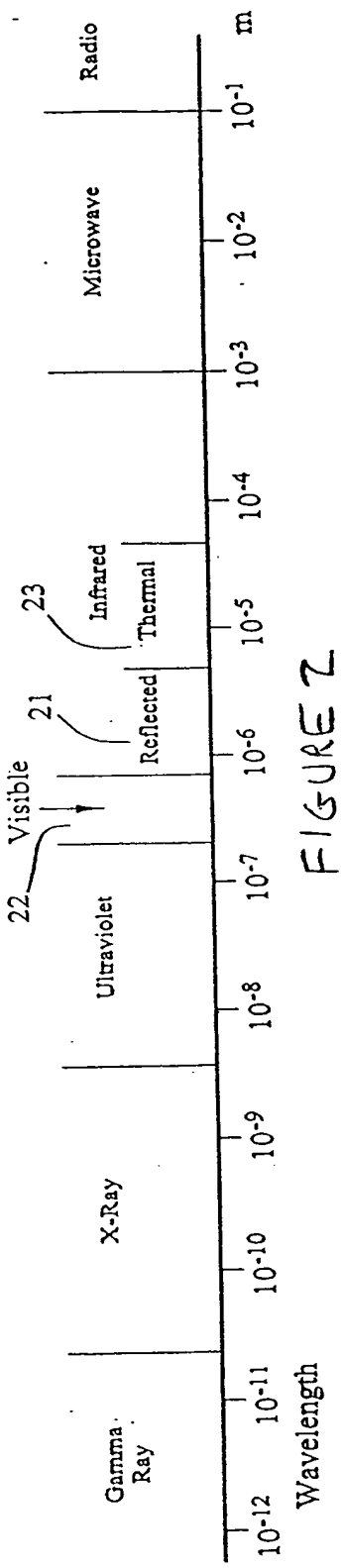

Radio
Microwave
Infrared
Thermal
Reflected
Visible
Ultraviolet
X-Ray
Gamma Ray
23
21
22
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
m
Wavelength

FIGURE 2

FIGURE 3

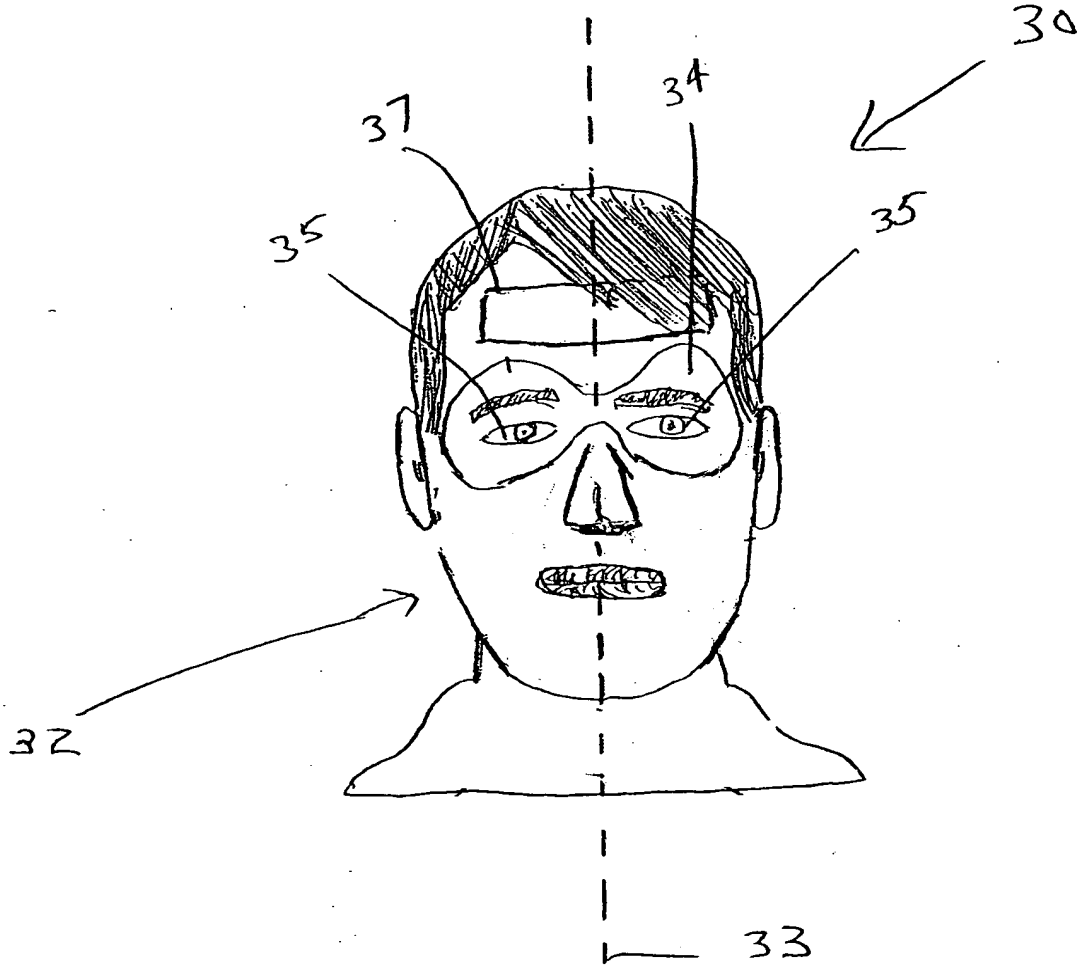


FIG. 4

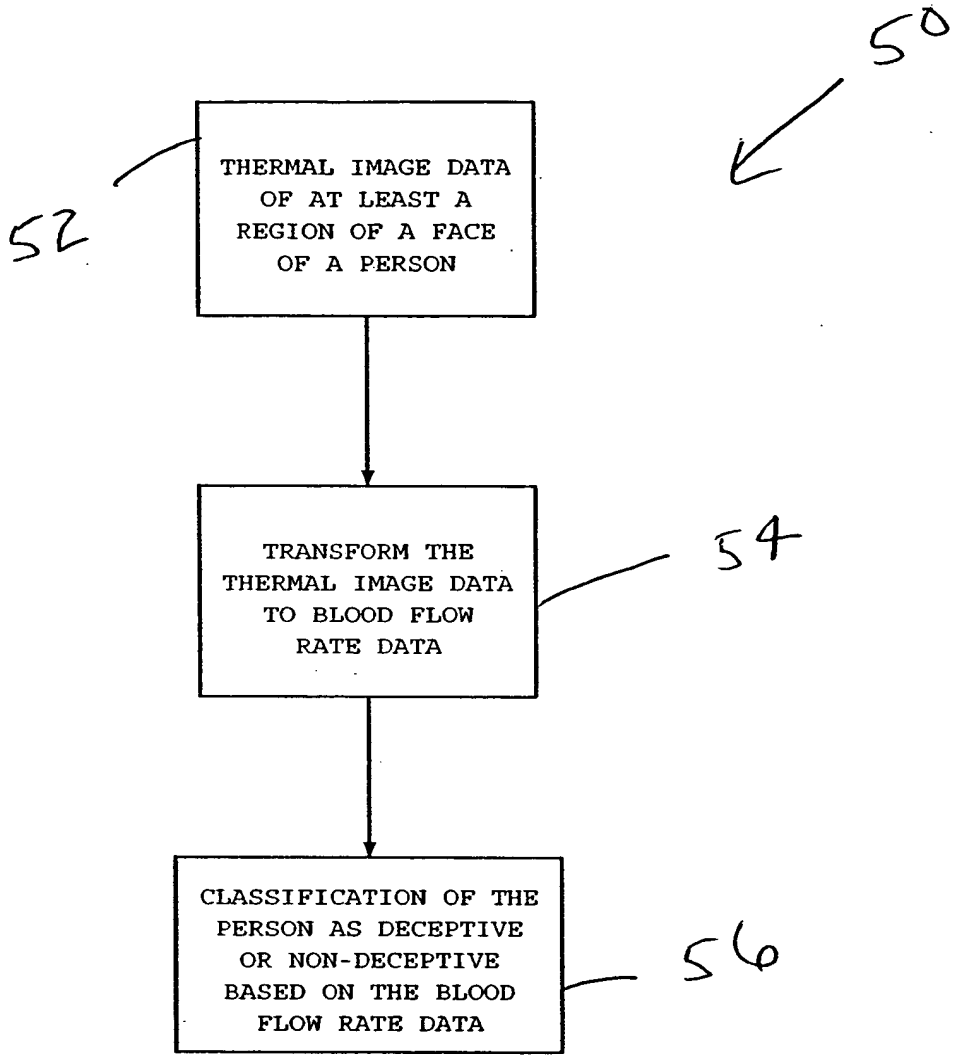

50
52
THERMAL IMAGE DATA OF AT LEAST A REGION OF A FACE OF A PERSON
TRANSFORM THE THERMAL IMAGE DATA TO BLOOD FLOW RATE DATA
54
CLASSIFICATION OF THE PERSON AS DECEPTIVE OR NON-DECEPTIVE BASED ON THE BLOOD FLOW RATE DATA
56

FIG. 5A

FIG. 6A

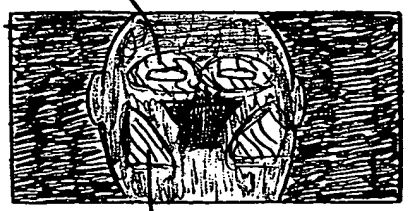


FIG. 5B

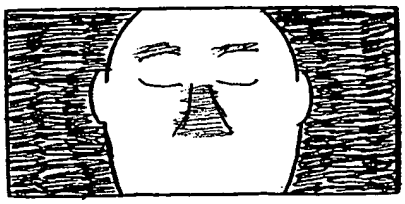


FIG. 6B

FIG. 7

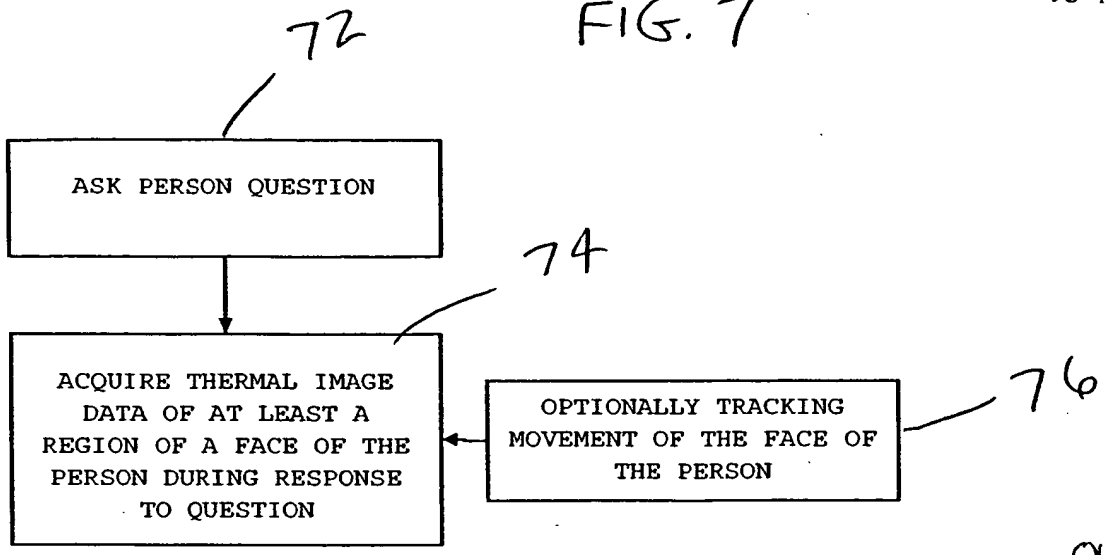


FIG. 8

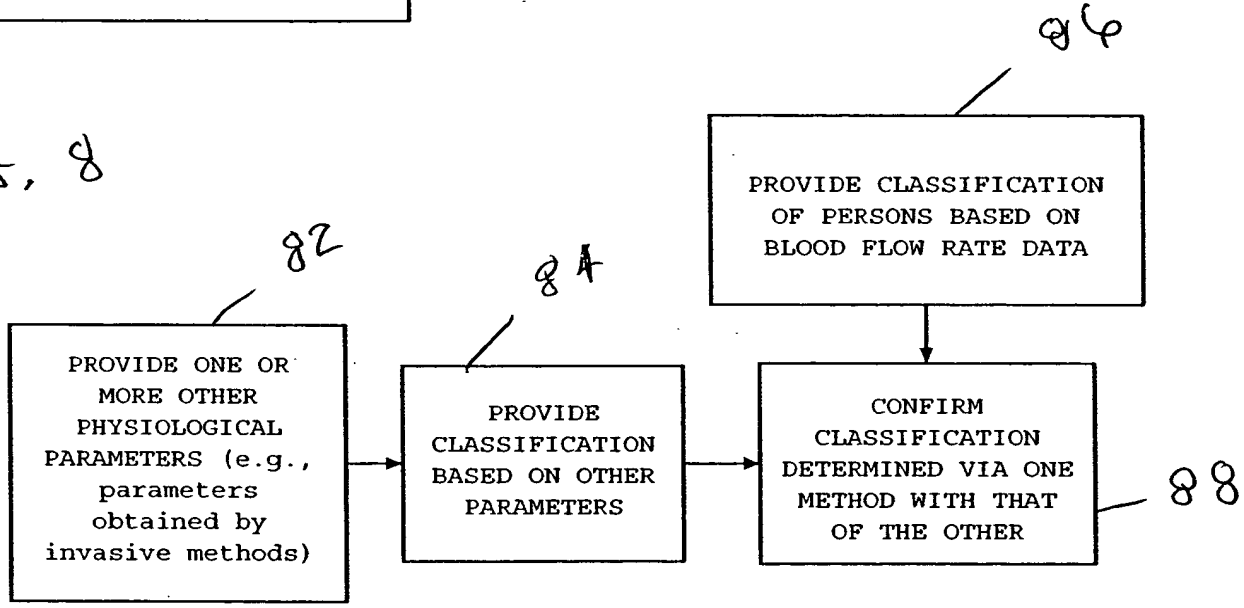


FIG. 9

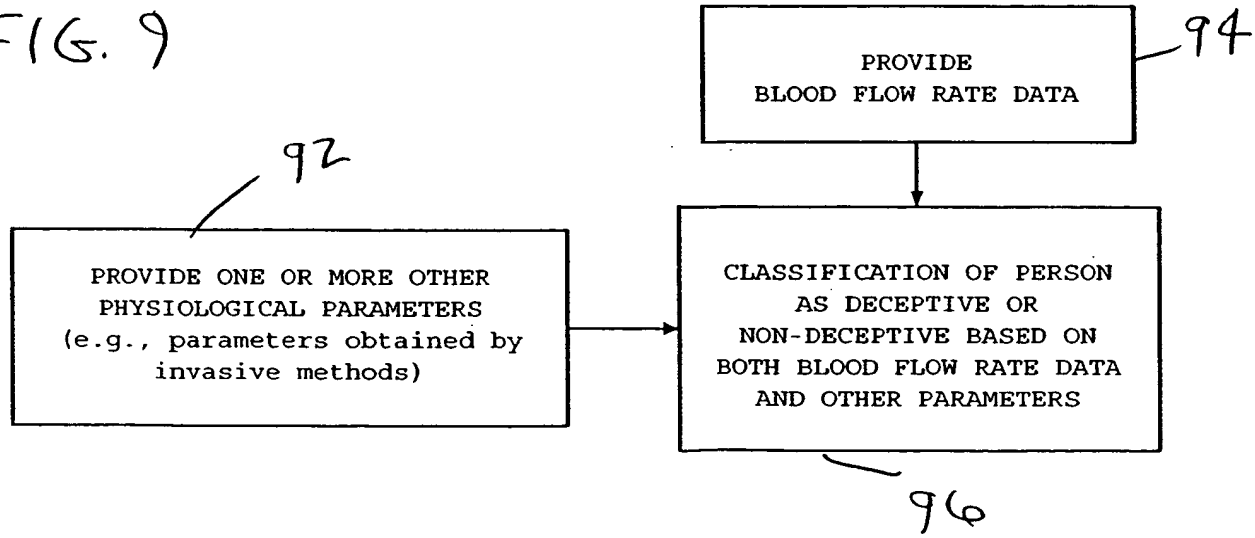


FIG. 10

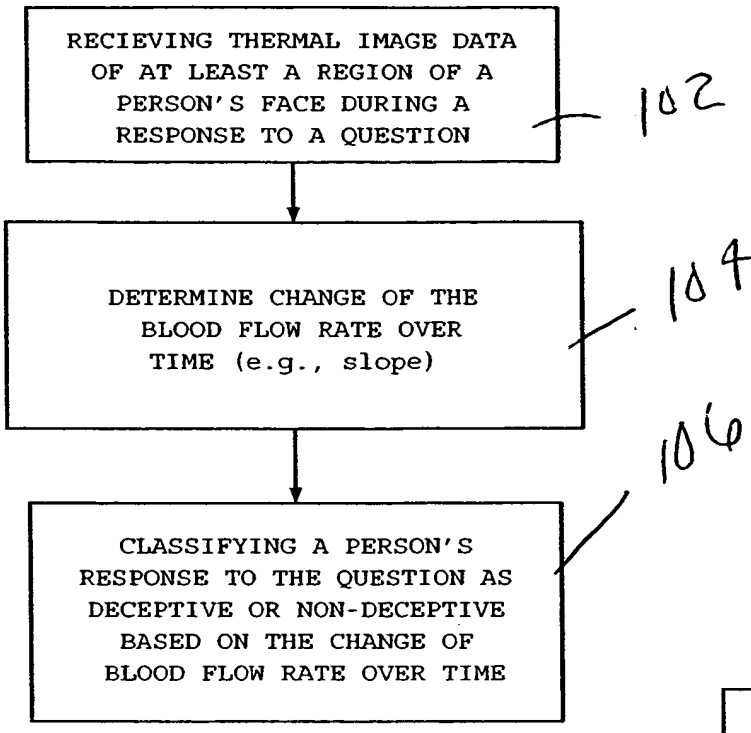


FIG. 11A

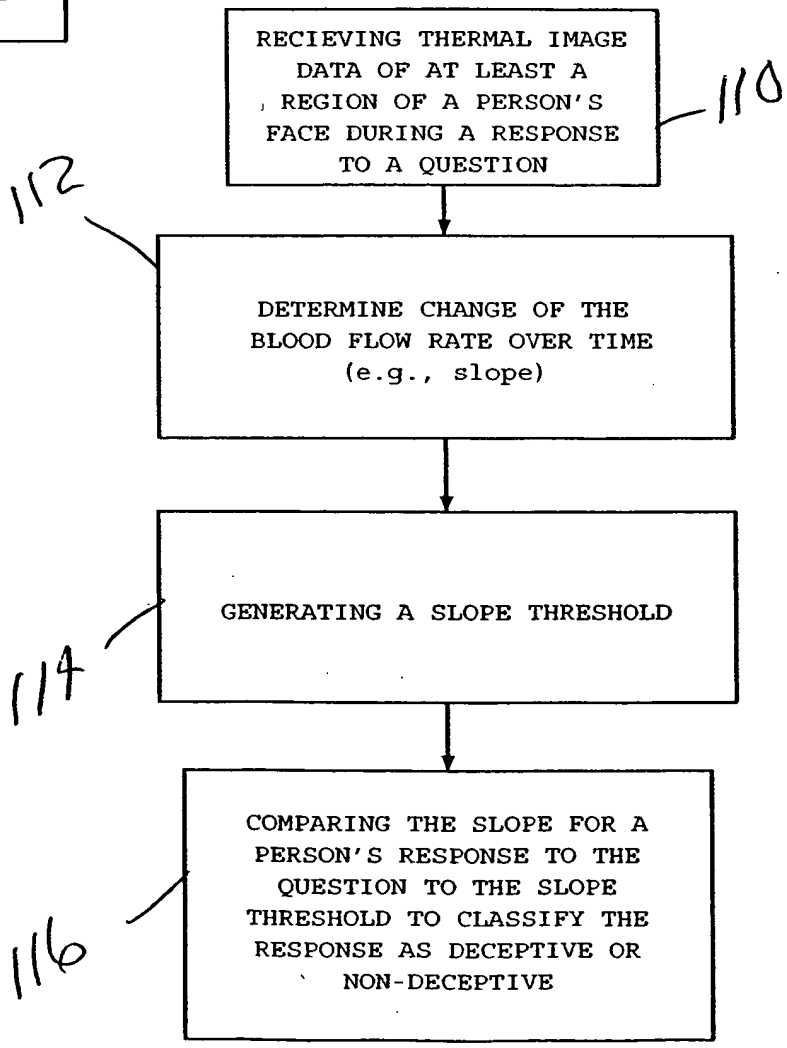
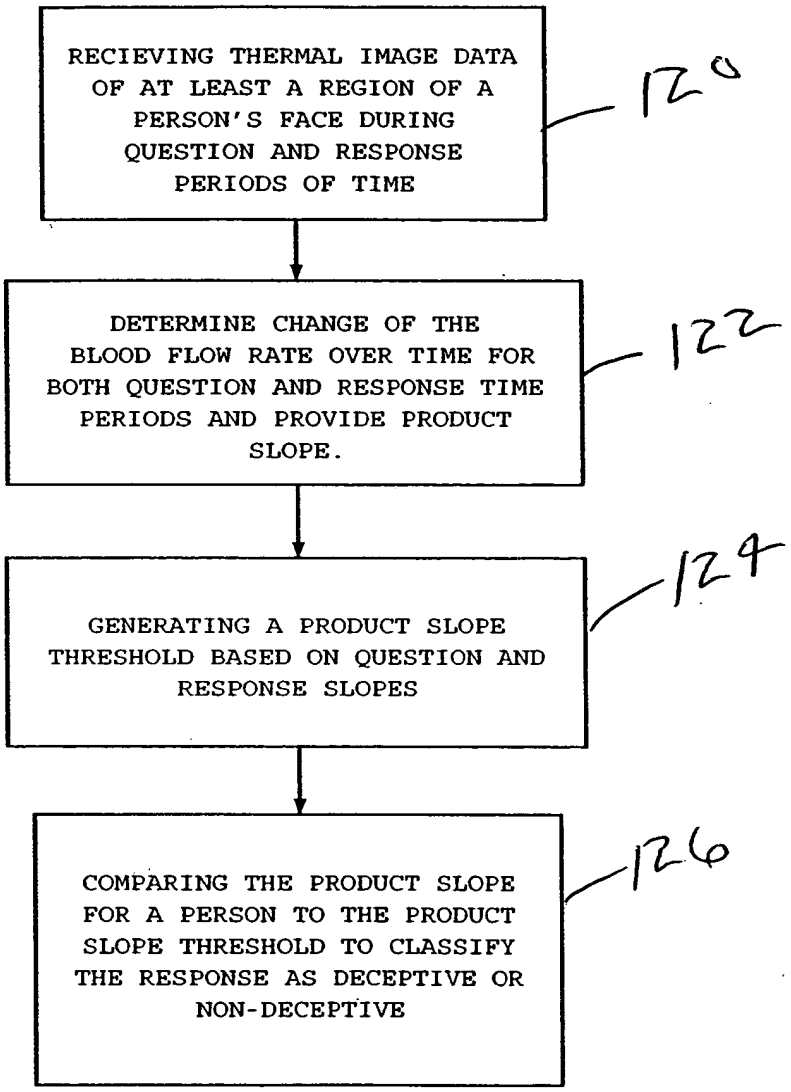


FIG. 11B


RECIEVING THERMAL IMAGE DATA OF AT LEAST A REGION OF A PERSON'S FACE DURING QUESTION AND RESPONSE PERIODS OF TIME
120
DETERMINE CHANGE OF THE BLOOD FLOW RATE OVER TIME FOR BOTH QUESTION AND RESPONSE TIME PERIODS AND PROVIDE PRODUCT SLOPE.
122
GENERATING A PRODUCT SLOPE THRESHOLD BASED ON QUESTION AND RESPONSE SLOPES
124
COMPARING THE PRODUCT SLOPE FOR A PERSON TO THE PRODUCT SLOPE THRESHOLD TO CLASSIFY THE RESPONSE AS DECEPTIVE OR NON-DECEPTIVE
126

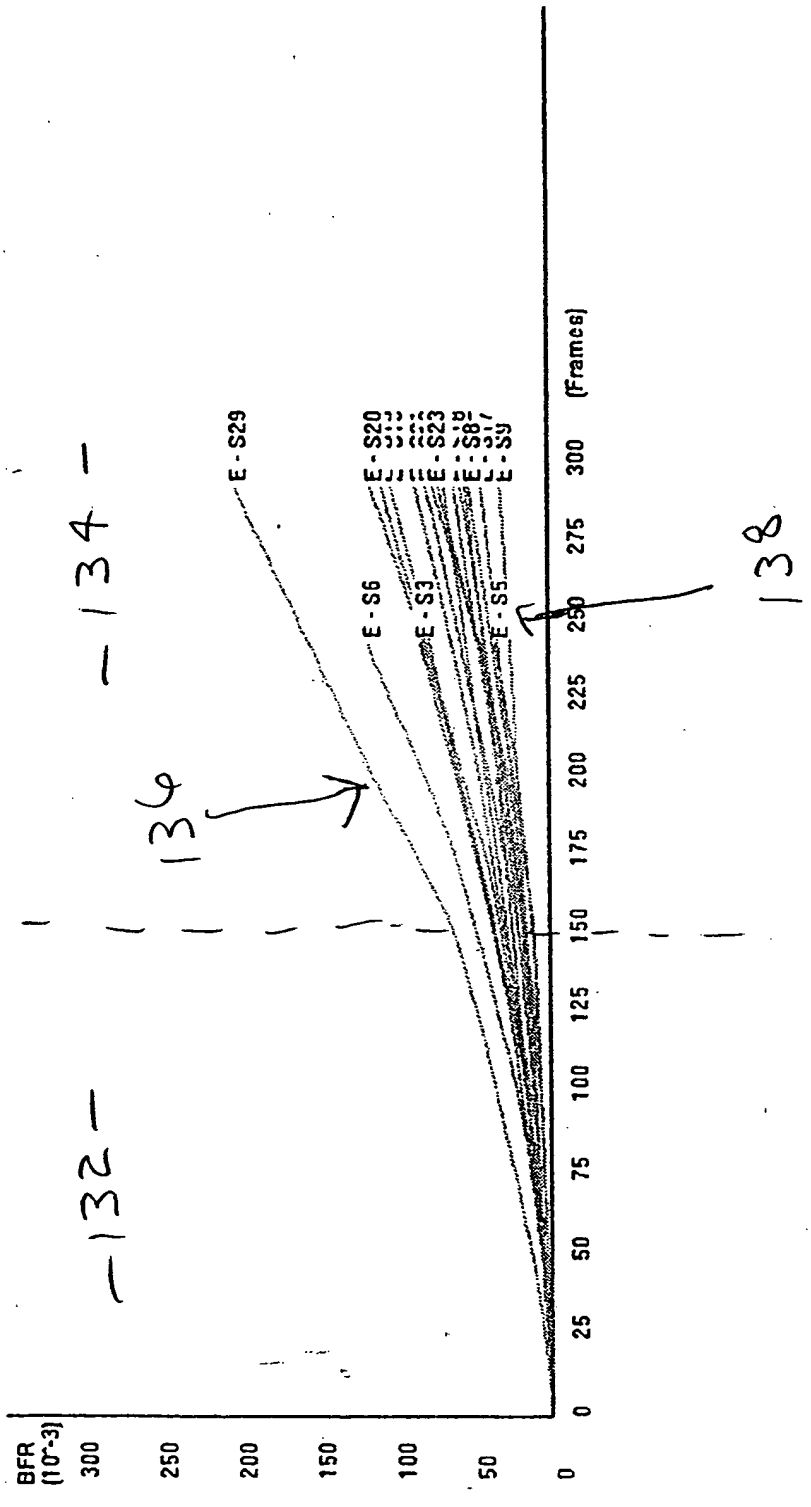

BFR (10^-3)
300
250
200
150
100
50
0
0
25
50
75
100
125
150
175
200
225
250
275
300
(Frames)
E - S29
E - S20
E - S23
E - S6
E - S3
E - S5
132
134
136
138

FIG. 12